REMARKS

Status

Claims 1, 2, 5 and 7-18 were the subject of the present Office Action. This response amends claim 1. No claims are added or canceled. Accordingly, it is claims 1, 2, 5 and 7-18 as amended which are at issue.

The Office Action

In the Office Action mailed June 19, 2009, claims 1, 2, 5, 7-12 and 14 were rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent 6,530,482 of Wiseman. Claims 13, 16 and 17 were rejected under 35 U.S.C. §103 as being unpatentable over Wiseman '482 and further in view of WO 03/013690 (U.S. equivalent 7,216,768). Claim 15 was rejected under 35 U.S.C. §103 as being unpatentable over Wiseman '482 and further in view of U.S. Patent 5,593,582 of Roff and U.S. Patent 4,319,990 of Muller.

In addition, the information disclosure previously filed was objected to as failing to comply with 37 CFR 1.98(a)(2).

Applicant thanks the Examiner for the Office Action, for the withdrawal of rejections previously made, and for the explanation of the basis of the rejections.

The Information Disclosure Statement

In the present Office Action mailed June 19, 2009, the Examiner indicated that the information disclosure statement filed June 11, 2008, fails to comply with 37 CFR 1.98(a)(2) on the grounds that Applicant has not provided a copy of German Patent DE 3015665. On this basis, the Examiner indicated that the cited reference has not been considered. Applicant notes for the record that U.S. Patent 4,322,288 is the English language equivalent of the German 3015665 patent, and the 4,322,288 patent has been cited in the record by the Examiner in the

Office Action mailed July 28, 2008. Therefore, the subject matter of the German patent has been considered on the record and Applicant's duty of disclosure with regard to this subject matter is satisfied.

Claim Rejections 35 U.S.C. §103

In the Office Action the Examiner has rejected claims 1, 2, 5, 7-12 and 14 as being unpatentable over Wiseman (US 6,530,482). In the response filed May 13, 2009, the Applicant provides arguments directed to establishing the novelty and inventiveness of claim 1 over Wiseman. The arguments provided therein (under the heading Claim Rejections 35 U.S.C. §103) from page 11 to page 14, line 13 are relevant and maintained.

A clarifying amendment is made to claim 1, to specifically recite that the stack of at least three screen assemblies is "a stack of at least three superposed screen assemblies". The three screen assemblies are superposed in the stack as shown throughout the application as filed, for example, Figures 2-10 and the corresponding description (pages 7-12).

On page 8 of the current Office Action the Examiner states that the Applicant contends, "Wiseman does not show or suggest a parallel operation condition" (emphasis added). The Applicant respectfully points out that in the previous response it was in fact acknowledged that Wiseman shows a parallel and a series screening operation. See page 14 of our response, third complete paragraph, "Wiseman teaches parallel or series screening operations …". The response as previously filed presents arguments explaining the differences between Wiseman and the present invention.

In particular, claim 1 is directed to a basket, which mounts a stack of at least three screen assemblies that are superposed and are provided with a flow distributor that is formed and arranged as detailed in the claim. A crucial point to note is that the flow distributor of the

present invention receives filtrate from a primary upper screen assembly before dividing the filtrate and directing it onto both of the first and second remaining screen assemblies (when in parallel mode). In series mode the flow distributor directs the filtrate from the primary upper screen assembly onto the two remaining screen assemblies in turn.

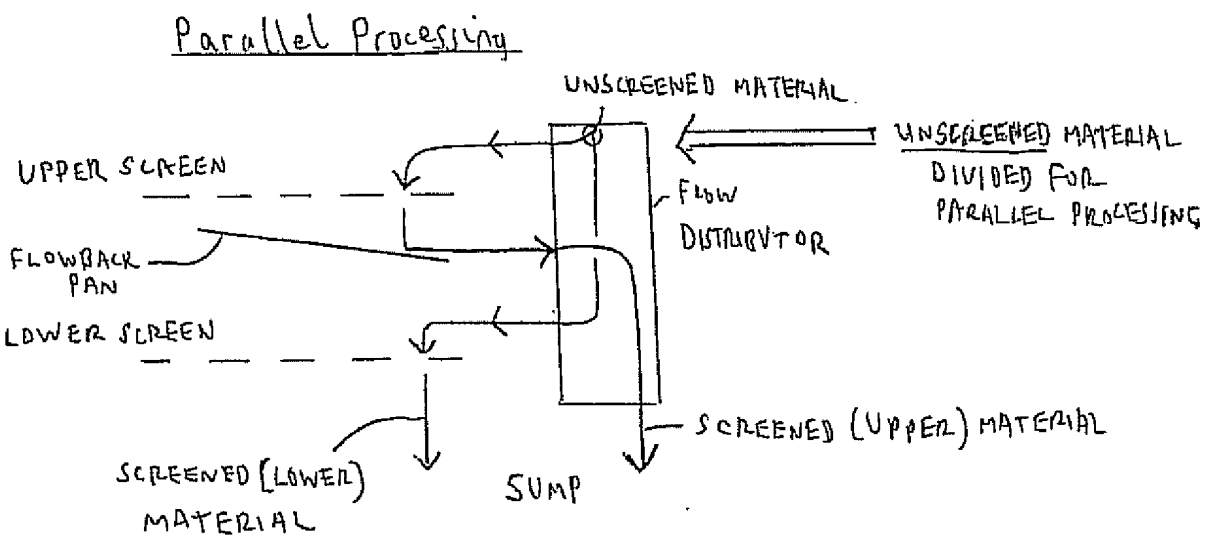
The Examiner suggests on page 3 of his Office Action that Wiseman teaches the same operation and refers to the figures of Wiseman and column 1, line 66 to column 2, line 27 and column 3, lines 37-51 of Wiseman. The Applicant respectfully disagrees. It is clear from considering the passages referred to by the Examiner that in Wiseman the flow distributor does not divide filtrate from a primary upper screen assembly into first and second feed streams for parallel processing onto two further superposed screen assemblies.

Wiseman teaches two modes of operation. In a parallel mode unscreened material is directed to the upper screen and the screened material falling through the upper screen is directed to the flow distributor by a flow back pan and then to the sump (i.e. by passing the lower screen). At the same time, further unscreened material is directed to the lower screen and material screened by the lower screen is also directed to the sump. See, for example the description of parallel processing at column 2, lines 19-27 of Wiseman. It is explained that unscreened material is directed to the (at least one) lower shaker screen, whilst material that has been screened by the (at least one) upper screen is directed away to the sump. More detailed description is provided at column 3, lines 31-52.

In series mode, the flow distributor of Wiseman is set to direct material that has been screened through the upper screen back to the lower screen for further screening.

A diagram showing the parallel operation as actually described in Wiseman and also as according to the present invention is included below as Figure 1.

Wiseman Prior Art Figure 1



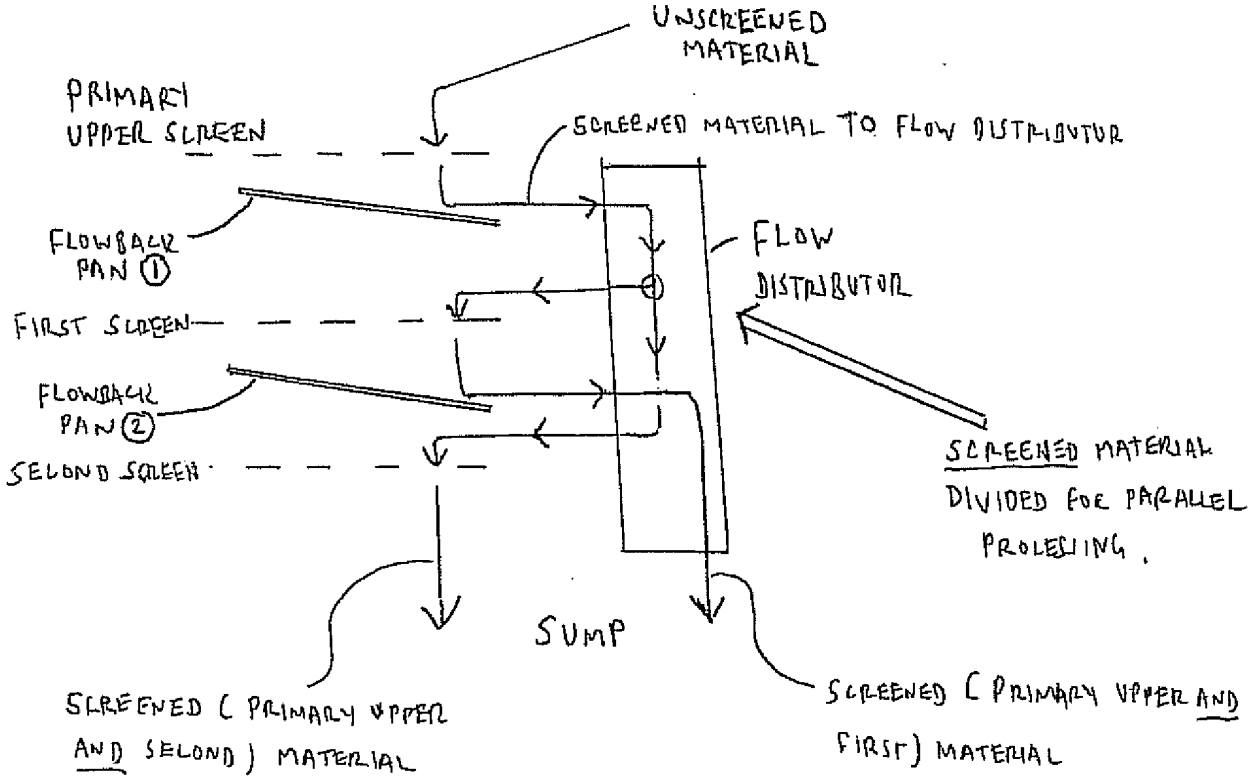
Not only does Wiseman not provide a stack of three superposed screen assemblies but also the flow distributor of Wiseman does not receive filtrate from the primary upper screen assembly before dividing it into at least first and second feed streams for further (parallel) filtration.

When operating in parallel mode the flow distributor of Wiseman divides unscreened material and directs it onto the upper and lower screen assemblies as shown in the diagram.

The flow distributor of the basket of claim 1 is arranged differently from that of Wiseman, as shown in Figure 2 below.

Axion Invention Figure 2

Parallel Processing – after upper screen filtration



Filtrate (screened material) from the upper screen assembly is then divided into first and second feed screens and then distributed onto the further two (first and second) superposed screen assemblies in a stack of superposed screen assemblies.

These differences can be seen on the attached diagram.

The Examiner has also suggested that the addition of a third screen assembly is a mere duplication of parts and that the third screen assembly does not have patentable significance. The Examiner further suggests that the language in the specification of Wiseman "at least one"

would lead one skilled in the art to add additional screen assemblies as desired. The Applicant respectfully disagrees with this assessment.

Firstly, although Wiseman uses the language "at least one", a fair reading of the content of Wiseman indicates that this expression is used in the context of a screening machine with two levels of screens, upper and lower, which each may have more than one screen fitted.

The apparatus is described as a "tandem shale shaker" (column 2, line 19). This is clearly seen in, for example, Figure 3 and the corresponding description in Wiseman which shows two upper shaker screens 14, 16 and two lower shaker screens 18, 20 arranged on an upper and on a lower level respectively. See for example, column 3, lines 7-12.

Even if Wiseman were considered to contemplate further superposed levels of screen assemblies there is no teaching in Wiseman of first screening through an upper screen assembly before dividing into the parallel flow streams in the same basket.

Of critical importance in the difference in operation between the apparatus of Wiseman and the present invention is the provision of the third (primary upper) screen. This provides significant advantages over Wiseman.

Wiseman provides a typical tandem shale shaker with two levels of screens but modified to provide the option of parallel or series processing. It does not provide an arrangement wherein the parallel and series processing options are available after a first screening through an upper screen assembly carried out in the same basket.

Providing a basket and associated flow distributor as described in claim 1 prevents problems that are likely to occur with the operation of an apparatus as described by Wiseman. Where the fluid being processed contains large volumes of solids or large sized particulate solids these will tend to settle out under the influence of gravity and accumulate in the flow distributor.

With the apparatus of Wiseman frequent downtime to clear blockages in the flow distributor may be expected as larger solids separate out under the influence of gravity from the fluid. Solids would be liable to collect in the riser 80 of Wiseman and would need to be periodically removed. Collected solids would affect the flow of fluid over the weir 82 requiring periodic adjustment of the sliding plate (Figure 10 of Wiseman). Furthermore, the various flow channels to the distribution conduit 26 will tend to become plugged. It should also be noted that the apparatus of Figure 11 of Wiseman (having flow control valves) is equally problematic as the pipes and associated control valves will be likely to jam when coarse material is being produced in a used drilling fluid.

Furthermore if the screens employed in Wiseman are relatively fine, as is commonly desired in oil drilling operations, then large particulates tend to damage fine screens, requiring yet further downtime for their replacement.

Additional, pre-screening apparatus has been employed in the prior art in order to handle quantities of coarse solids (or in some cases sticky soft clays which form an intractable mud known as gumbo) in drilling fluid screening operations. However use of pre-screening apparatus has the disadvantage of additional capital cost and a larger requirement for space. Space is at a premium on offshore drilling rigs.

The present invention provides a stack at least three screens with a flow distributor operable (in parallel or series mode) after the primary upper screen. This avoids the requirement for additional (bulky) pre-screening apparatus or the large amount of down time that would inherently arise when attempting to screen fluids directly on a tandem shale shaker using the flow distributor suggested by Wiseman.

By providing an upper screen that is in the same basket and is used to screen the solids and liquids flow before it is directed to the flow distributor the present invention provides a much more efficient screening operation. Larger particle solids are removed from the fluid flow before entry to the flow distributor, thus avoiding or preventing entirely the settling out of such larger solids in the flow distributor. Yet at the same time the efficiency benefits of parallel operation and the flexibility of being able to switch to series operation depending on operational requirements are provided.

The Applicant has achieved considerable commercial success with apparatus of the present invention with more than 150 having been sold to date.

For the above reasons the basket of claim 1 and the apparatus of claim 2 is new and inventive when compared with the available prior art.

The Examiner contends that Wiseman teaches the restrictive feed capacity configuration of claim 5. The Applicant respectfully disagrees. The Examiner refers to Figures 3 and 4 and column 3, lines 37-51 of Wiseman. Wiseman does not teach a stack of three superposed screens as required in claim 1 and therefore cannot teach the option of making use of only two of the three screens as is the subject matter of claim 5.

As far as the objections raised in respect of claims 7, 8 in respect of different mesh sizes, these claims depend from claim 1 which requires a basket having three superposed screen assemblies which are not found in Wiseman and are not obvious over the prior art.

Similarly, claims 9-12 and 14 also depend from claim 1 and are therefore new with respect to the teaching of Wiseman.

With regard to claim 18, it is dependent from claim 1 and it should be noted that it requires that each of the flow directing trays intercept the whole of the filtrate from the screen

assembly directly above. Wiseman only shows two levels of screen assemblies with one flow directing tray (flow back pan) between.

Claims 13, 16 and 17 were objected to on the basis of Wiseman in view of US 7,216,768. As noted above, Wiseman does not teach the basket of claim 1 from which these claims depend via claim 9. Therefore, these claims are new and not obvious in the light of the prior art.

Claim 15 was objected to on the basis of Wiseman in view of Roff, Jr. and Muller. Wiseman does not teach the basket of claim 1. Claim 15 depends from claim 1 and adds the feature of flexible conduits from the flow distributor to the basket. Therefore the claim is new and not obvious in the light of the prior art.

As will thus be seen from the figures and discussion above, the system of the present invention differs significantly in configuration from anything shown in the prior art taken either singly or in combination. Therefore, the systems and function of the present invention cannot be achieved by any obvious modification of the prior art. The present invention provides a significant improvement in form and function of screening systems, and the benefits thereof are not expected or predictable in view of the prior art. Therefore, Applicant respectfully submits that in view of the present amendment and remarks, all rejections are rendered moot.

Conclusion

In view of the foregoing, this application is in condition for allowance. Any questions, comments, or suggestions the Examiner may have which will place it in still better condition for allowance should be directed to the undersigned attorney.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 07-1180.

Dated:

Respectfully submitted,

By _____
Ronald W. Citkowski
Registration No.: 31,005
GIFFORD, KRASS, SPRINKLE, ANDERSON
& CITKOWSKI, P.C.
2701 Troy Center Drive, Suite 330
Post Office Box 7021
Troy, Michigan 48007-7021
(248) 647-6000
(248) 647-5210 (Fax)
Attorney for Applicant